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L16: Entry 4 of 13

File: USPT

Aug 31, 2004

US-PAT-NO: 6784420

DOCUMENT-IDENTIFIER: US 6784420 B2

TITLE: Method of separating particles using an optical gradient

DATE-ISSUED: August 31, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wang; Mark M.	San Diego	CA		
Tu; Eugene	San Diego	CA		
O'Connell; James P.	Del Mar	CA		
Lykstad; Kristie L.	San Diego	CA		
Butler; William F.	La Jolla	CA		

US-CL-CURRENT: 250/251; 435/173.1

CLAIMS:

We claim:

1. A method for interacting an optical gradient field in three dimensions with a particle, comprising the steps of: interfering two beams to generate a plurality of planar fronts, providing a plurality of particles in a medium, and moving the planar fronts relative to the particles, whereby the particles are separated at least in part based upon the dielectric constant of the particles.
2. The method of claim 1 wherein the interfering of the two beams utilizes two separate beams.
3. The method of claim 1 wherein the interfering of the two beams utilizes a single source to generate the two beams.
4. The method of claim 3 wherein the two beams comprise a direct and reflected beam.

5. The method of claim 4 wherein the reflected beam is reflected at an oblique angle to the mirror.
6. The method of claim 1 wherein the medium has a dielectric constant which is less than the dielectric constant of the particle.
7. The method of claim 1 wherein the planar front moves in a direction perpendicular to the interference planes.
8. The method of claim 1 wherein the planar fronts move through a volume.
9. The method of claim 1 wherein the particles and media are contained in a sample volume.
10. The method of claim 9 wherein the sample volume is a three dimensional volume.
11. The method of claim 1, wherein the particles are cells.
12. A method of separating particles using an optical force gradient comprising the steps of: providing a three-dimensional volume containing a plurality of particles in a medium; interfering two beams to generate a plurality of planar fronts within the three-dimensional volume, the plurality of planar fronts affecting differential force vectors on the particles so as to separate the particles, whereby the particles are separated at least in part based upon the dielectric constant of the particles.
13. The method of claim 12, wherein the particles are cells.
14. The method of claim 12, wherein the interfering of the two beams utilizes two separate beams.
15. The method of claim 12, wherein the interfering of the two beams utilizes a single source to generate the two beams.

16. The method of claim 15, wherein the two beams comprise a direct and reflected beam.

17. The method of claim 16, wherein the reflected beam is reflected at an oblique angle to the mirror.

18. The method of claim 12, wherein the medium has a dielectric constant which is less than the dielectric constant of the particle.

19. The method of claim 12, wherein the planar front moves in a direction perpendicular to the interference planes.

20. The method of claim 12, wherein the planar fronts move through the volume.

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L16: Entry 3 of 13

File: USPT

Sep 21, 2004

US-PAT-NO: 6794128

DOCUMENT-IDENTIFIER: US 6794128 B2

TITLE: Methods of selecting internalizing antibodies

DATE-ISSUED: September 21, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Marks; James D.	Kensington	CA		
Poul; Marie Alix	San Francisco	CA		
Becerril; Baltazar	Morelos			MX

US-CL-CURRENT: [435/5](#); [435/320.1](#), [435/4](#), [435/6](#), [435/7.1](#), [435/7.2](#), [435/DIG.1](#),
[435/DIG.14](#), [435/DIG.15](#), [435/DIG.2](#), [435/DIG.3](#) , [435/DIG.4](#), [436/501](#), [436/518](#),
[536/23.1](#), [536/23.53](#)

CLAIMS:

What is claimed is:

1. A method of selecting a polypeptide that is internalized into a target cell, said method comprising: i) contacting one or more target cells with one or more members of a phage display library displaying one or more polypeptides; ii) culturing the one or more target cells and enriching internalized library members under conditions where said internalized library members of said phage display library are enriched at least 30-fold as compared to on-internalized library members, wherein at least 30-fold enrichment is achieved in a single repetition of step i) and ii); and iii) identifying internalized library members of said phage display library, thereby selecting for a polypeptide that is internalized into the target cell.

2. The method of claim 1, wherein said phage display library is an antibody phage display library.

3. The method of claim 2, wherein said antibody phage

display library displays single chain antibody Fv regions.

4. The method of claim 1, wherein said identifying comprises recovering internalized phage and repeating steps (i) through (iii) to further select for internalizing binding moieties.

5. The method of claim 4, wherein said recovering comprises: (a) lysing said target cells to release internalized phage; and (b) infecting a bacterial host with said internalized phage to produce phage for a subsequent round of selection.

6. The method of claim 4, wherein said recovering comprises recovering nucleic acids encoding the phage-displayed antibody.

7. The method of claim 1, wherein said identifying comprises detecting expression of a reporter gene or a selectable marker.

8. The method of claim 1, wherein said target cells form an adherent layer in said method.

9. The method of claim 1, wherein said phage express a selectable marker.

10. The method of claim 9, wherein said selectable marker is selected from the group consisting of a fluorescent protein, an antibiotic resistance gene, and a chromagenic gene.

11. The library of claim 10, wherein said chromagenic gene is selected from the group consisting of horse radish peroxidase, B-lactamase, luciferase, and B-galactosidase.

12. The method of claim 1, wherein said target cells are selected from the group consisting of solid tumor cells, members of a cDNA expression library, cells that overexpress a cytokine receptor, cells that overexpress a growth factor receptor, metastatic cells, cells of a transformed cell line, cells transformed with a gene or

cdNA encoding a specific surface target receptor, and neoplastic cells derived from outside a solid tumor.

13. The method of claim 1, wherein said method further comprises contacting the members of the phage display library with cells of a subtractive cell line.

14. The method of claim 13, wherein said cells of a subtractive cell line are present in at least 2-fold excess over said target cells.

15. The method of claim 13, wherein said cells of a subtractive cell line are selected from the same tissue type as the target cells.

16. The method of claim 13, wherein said cells of a subtractive cell line are selected from the group consisting of fibroblasts, monocytes, stem cells, and lymphocytes.

17. The method of claim 13, wherein said method further comprises contacting the members of the phage display library with live cells of a subtractive cell line.

18. The method of claim 1, wherein culturing said target cells and enriching internalized library members comprises contacting the target cells with a low pH wash.

19. The method of claim 13, wherein culturing said target cells and enriching internalized library members comprises contacting the target cells with a low pH wash.

20. The method of claim 1, wherein culturing said target cells and enriching internalized library members comprises trypsinizing the target cells.

21. The method of claim 13, wherein culturing said target cells and enriching internalized library members comprises trypsinizing the target cells.

22. The method of claim 13, wherein the target cells are cells that are transformed a nucleic acid that encodes

and expresses a target receptor and the subtractive cell line is the non-transformed cell line.

23. A method of selecting a polypeptide that is internalized into a target cell, comprising: i) contacting one or more target cells with one or more members of a phage display library displaying one or more polypeptides; ii) culturing the one or more target cells under conditions wherein members of said phage display library bound to an internalizing marker become internalized; iii) reducing non-internalized members of said phage display library by removing phage trapped in an extracellular matrix; and iv) identifying members of said phage display library that are internalized into one or more of said target cells, where the internalized library members of said phage display library each display polypeptide that is internalized into a target cell.

24. The method of claim 23, wherein removing the phage trapped in the extracellular matrix comprises washing the one or more target cells with a stripping buffer comprising 50 mM glycine pH 2.8, 0.5 M NaCl, 2M urea, and 2% polyvinylpyrrolidone.

25. The method of claim 23, wherein removing the phage trapped in the extracellular matrix comprises trypsinizing the one or more target cells.

26. The method of claim 23, wherein said phage display library is an antibody phage display library.

27. The method of claim 23, wherein said antibody phage display library displays single chain antibody Fv regions.

28. The method of claim 23, wherein identifying the internalized library members comprises recovering internalized phage and repeating steps (i) through (iv) to further select for internalizing binding moieties.

29. The method of claim 28, wherein said recovering comprises: (a) lysing said target cells to release

internalized phase; and (b) infecting a bacterial host with said internalized phage to produce phage for a subsequent round of selection.

30. The method of claim 28, wherein said recovering comprises recovering nucleic acids encoding the phage-displayed antibody.

31. The method of claim 23, wherein identifying the internalized library members comprises detecting expression of a reporter gene or a selectable marker.

32. The method of claim 23, wherein said target cells form an adherent layer in said method.

33. The method of claim 23, wherein said phage express a selectable marker.

34. The method of claim 33, wherein said selectable marker is selected from the group consisting of a fluorescent protein, an antibiotic resistance gene, and a chromogenic gene.

35. The library of claim 34, wherein said chromogenic gene is selected from the group consisting of horse radish peroxidase, B-lactamase, luciferase, and B-galactosidase.

36. The method of claim 23, wherein said target cells are selected from the group consisting of solid tumor cells, members of a cDNA expression library, cells that overexpress a cytokine receptor, cells that overexpress a growth factor receptor, metastatic cells, cells of a transformed cell line, cells transformed with a gene or cDNA encoding a specific surface target receptor, and neoplastic cells derived from outside a solid tumor.

37. The method of claim 23, wherein said method further comprises contacting the members of the phage display library with cells of a subtractive cell line.

38. The method of claim 37, wherein said cells of a subtractive cell line are selected from the same tissue type as the target cells.

39. The method of claim 37, wherein said cells of a subtractive cell line are selected from the group consisting of fibroblasts, monocytes, stem cells, and lymphocytes.

40. The method of claim 37, wherein said cells of a subtractive cell line are present in at least 2-fold excess over said target cells.

41. The method of claim 37, wherein said cells of a subtractive cell line are live cells.

42. The method of claim 37, wherein the target cells are cells that are transformed a nucleic acid that encodes and expresses a target receptor and the subtractive cell line is the non-transformed cell line.

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L16: Entry 1 of 13

File: USPT

Dec 21, 2004

US-PAT-NO: 6833542

DOCUMENT-IDENTIFIER: US 6833542 B2

TITLE: Method for sorting particles

DATE-ISSUED: December 21, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wang; Mark M.	San Diego	CA		
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Lykstad; Kristie L.	San Diego	CA		
Butler; William F.	La Jolla	CA		

US-CL-CURRENT: 250/251; 435/173.1

CLAIMS:

We claim:

1. A method for sorting a particle of interest from a plurality of particles comprising the steps of:
determining an absorption maxima of the particle of interest; providing a light source to generate a beam of coherent light at a wavelength of the absorption maxima; providing a plurality of particles on a support surface; illuminating the plurality of particles with a moving beam of the coherent light, the moving beam of light causing differential movement between the particle of interest and the plurality of particles; and collecting the particle of interest.
2. The method of claim 1, wherein the absorption maxima is a local maxima.
3. The method of claim 1, wherein the absorption maxima is a global maxima.
4. The method of claim 1, wherein the absorption maxima

is obtained by empirical data.

5. The method of claim 1, wherein the support surface is a slide.

6. The method of claim 1, wherein the support surface is a microfluidic channel.

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File: USPT

Mar 13, 2001

US-PAT-NO: 6200639DOCUMENT-IDENTIFIER: US 6200639 B1**** See image for Certificate of Correction ****

TITLE: Coating agent, the manufacture and uses thereof

DATE-ISSUED: March 13, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Duecoffre; Volker	Wuppertal			DE
Schubert; Walter	Wuppertal			DE
Herrmann; Friedrich	Wuppertal			DE
Flosbach; Carmen	Wuppertal			DE
Leckebusch; Claudia	Wuppertal			DE

US-CL-CURRENT: 427/386; 427/388.2, 427/388.4, 427/407.1, 427/409, 427/410, 524/507,
524/513, 524/517, 525/125, 525/131, 525/176, 525/194, 525/208

CLAIMS:

What is claimed is:

1. Coating composition comprising a binder composition, solvent and/or water and optionally pigments and/or fillers and optionally the conventional additives in lacquers, characterized in that the binder composition comprises:

A) 25 to 75 wt. % of one or more carboxyl-functional (meth) acrylic copolymers with a number-average molecular weight of 1,000 to 3,000 g/mol and/or one or more carboxyl-functional polyesters with a number-average molecular weight of 500 to 4,000 g/mol, the carboxyl functionality of which in each case corresponds to an acid number of 15 to 300 mg KOH/g,

B) 25 to 75 wt. % of one or more epoxide-functionalized (meth) acrylic copolymers with a number-average molecular weight of 200 to 10,000 g/mol, an epoxide equivalent weight of 200 to 700 and a glass transition temperature of -20 to 70.degree. C., which have been prepared co-using 3 to 50 wt. %, based on the total weight of the monomer units, of tert-butyl (meth)acrylate as a monomer unit, the ratio of the amounts of A) to B) being chosen such that

the molar ratio of their reactive groups is 1:3 to 3:1.

C) 0 to 50 wt. % of one or more polyols which have at least two hydroxyl functions in the molecule and differ from a component A) optionally containing hydroxyl functions,

D) 0 to 40 wt. % of components which crosslink with hydroxyl groups to form ethers, and/or of a crosslinking agent based on triazine,

E) 0 to 40 wt. % of one or more polyisocyanates, which can optionally be masked,

F) 0 to 50 wt. % of an anhydride component comprising at least one organic polyanhydride with at least two cyclic carboxylic acid anhydride groups per molecule,

G) 0 to 20 wt. % of one or more reactive thinners with an epoxide function,

H) 0 to 10 wt. % of one or more catalysts to catalyse the reaction of carboxyl and epoxide groups,

the sum of the wt. % of components A) to H) adding up to 100 wt. %.

2. Coating composition according to claim 1, wherein component B) is based on a (meth)acrylic copolymer which is based on the following monomer units:

b1) 5 to 60 wt. % of one or more epoxide-functional olefinically unsaturated monomers,

b2) 3 to 50 wt. % tert-butyl (meth)acrylate,

b3) 0 to 60 wt. % of one or more aromatic vinyl-functional monomers,

b4) 0 to 20 wt. % of one or more hydroxyl-functional (meth)acrylic monomers,

b5) 0 to 92 wt. % of one or more monomers which differ from b1) to b4),

the sum of the wt. % of b1) to b5) adding up to 100 wt. %.

3. Coating composition as claimed in claim 2, wherein said epoxide-functional olefinically unsaturated monomers comprise glycidyl (meth)acrylate.

4. Coating composition according to claim 1, comprising as component A) one or more carboxyl-functional (meth)acrylic copolymers or carboxyl-functional polyesters, at least some of the carboxyl functions of which are reacted with lactone.

5. Coating composition according to claim 1, wherein or some of component B) has been prepared by polymerization in the presence of component C).

6. A process for production of multi-layered laquers comprising:

applying a primer and, optionally one or more intermediate layers to a substrate;

subsequently, applying a base lacquer comprising coloured and/or effect pigments;

subsequently, overlacquering said base lacquer with a clear lacquer;

wherein said base lacquer and said clear lacquer are applied by a wet-in-wet process and stoved together; and wherein at least one of said base lacquer and said clear lacquer comprises a coating composition according to claim 1.

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L2: Entry 2 of 2

File: USPT

Dec 30, 2003

US-PAT-NO: 6670194DOCUMENT-IDENTIFIER: US 6670194 B1**** See image for Certificate of Correction ****

TITLE: Rapid quantitative analysis of proteins or protein function in complex mixtures

DATE-ISSUED: December 30, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
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Scott; C. Ronald	Seattle	WA		
Turecek; Frantisek	Seattle	WA		
Gerber; Scott A.	Seattle	WA		
Rist; Beate	Seattle	WA		

US-CL-CURRENT: 436/173; 436/120, 436/161, 436/165, 436/166, 436/167, 436/168,
436/171, 436/174, 436/175, 436/177, 436/86 , 436/89, 530/350, 530/391.5, 530/812

CLAIMS:

We claim:

1. A method for identifying and determining the relative amounts of one or more proteins or protein functions in two or more samples containing mixtures of proteins which comprises the steps of: (a) providing an affinity tagged, substantially chemically identical but isotopically distinguishable protein reactive reagent for each sample wherein the reagent has the formula:

A--L--PRG where A is an affinity label that selectively binds to a capture reagent, L is a linker group which is differentially labeled with one or more stable isotopes and PRG is a protein reactive group that selectively reacts with a protein functional group or is a substrate

for an enzyme; (b) reacting each sample with one of the protein reactive reagents to provide affinity tagged proteins or affinity tagged enzyme products in the sample, affinity tagged proteins or enzyme products in different samples being thereby differentially labeled with one or more stable isotopes; (c) combining the differentially labeled samples; (d) capturing affinity tagged differentially labeled proteins or affinity tagged differentially labeled enzyme products of the samples using the capture reagent that selectively binds A; (e) releasing captured affinity tagged differentially labeled proteins or affinity tagged differentially labeled enzyme products from the capture reagent by disrupting the interaction between the affinity tagged differentially labeled proteins or affinity tagged differentially labeled enzyme products and the capture reagent; (f) detecting and identifying the released affinity tagged differentially labeled proteins or affinity tagged differentially labeled enzyme products by mass spectrometry; and (g) measuring the relative amounts of the affinity tagged differentially labeled proteins, the relative amounts of the affinity tagged differentially labeled enzyme products or both.

2. The method of claim 1 wherein the affinity tagged proteins in the combined samples are digested or fragmented, before or after their capture, to convert them into affinity tagged peptides.

3. The method of claim 2 wherein one or more of the affinity tagged peptides are sequenced by tandem mass spectroscopy to identify the affinity tagged protein from which the peptide originated.

4. The method of claim 1 wherein a protein portion of one or more of the affinity tagged proteins is sequenced by tandem mass spectrometry to identify the protein.

5. The method of claim 1 in which the amount of one or more proteins in the samples is also determined by mass spectrometry and which further comprises the step of introducing into each of the two or more samples a known amount of one or more internal standards for each of the

proteins to be quantitated.

6. The method of claim 5 wherein the internal standard is an affinity tagged differentially isotopically labeled peptide that is characteristic of a protein to be identified in each of the two or more samples.

7. The method of claim 5 wherein PRG is a protein reactive group that selectively reacts with protein functional groups of interest and a plurality of proteins are detected and identified in each of the samples.

8. The method of claim 1 wherein PRG is an enzyme substrate and the enzymatic velocities of one or more enzymes in a sample are determined by quantitation of affinity tagged enzyme products and which further comprises the step of introducing into each of the two or more samples a known amount of one or more internal standards for each of the affinity tagged enzyme products to be quantitated.

9. The method of claim 1 wherein the released affinity tagged proteins or affinity tagged enzyme products are separated by chromatography prior to detecting and identifying by mass spectrometry.

10. The method of claim 1 in which a plurality of proteins or protein functions in each samples are detected and identified.

11. The method of claim 1 further comprising a step in which one or more of the proteins in a sample are treated enzymatically or chemically to expose a protein functional group that can react with the protein reactive group of the protein reactive reagent.

12. The method of claim 1 wherein the PRG is an enzyme substrate for one or more enzymes, enzymatic deficiencies of which, are linked to a disease state.

13. The method of claim 1 wherein an affinity tagged, substantially chemically identical but isotopically

distinguishable substrate is provided for each enzyme that is to be detected and identified in the two or more samples.

14. The method of claim 1 wherein PRG is a protein reactive group that selectively reacts with a protein functional group and a plurality of proteins containing that protein functional group are detected and identified in the two or more samples.

15. The method of claim 14 wherein two or more affinity tagged, substantially chemically identical but isotopically distinguishable protein reactive reagents having different specificities for reaction with proteins are provided and reacted with each sample to be analyzed.

16. The method of claim 15 wherein all of the proteins in each sample are detected and identified.

17. The method of claim 1 which determines relative amounts of membrane proteins in two or more different samples.

18. The method of claim 1 in which different samples contain proteins originating from different organelles or different subcellular fractions.

19. The method of claim 1 in which different samples represent proteins expressed in response to different environmental or nutritional conditions, different chemical or physical stimuli or at different times.

20. The method of claim 1 wherein one or more of the proteins or protein functions identified is associated with a birth defect.

21. The method of claim 1 wherein one or more of the proteins or protein functions identified is associated with a lysosomal storage disease.

22. The method of claim 1 wherein the samples are samples comprising cell surface proteins.

23. The method of claim 1 wherein the method identifies one or more marker proteins characteristic of a particular cell state.

24. The method of claim 1 wherein the reagent has the formula:

$$A\text{--}B.\text{sup.1}\text{--}X.\text{sup.1}\text{--}(\text{CH}.\text{sub.2}).\text{sub.n}\text{--}[X.\text{sup.2}\text{--}(\text{CH}.\text{sub.2}).\text{sub.m}]\text{sub.x}\text{--}X.\text{sup.3}\text{--}(\text{CH}.\text{sub.2}).\text{sub.p}\text{--}X.\text{sup.4}\text{--}B.\text{sup.2}\text{--PRG}$$

where: A is the affinity label; PRG is the protein reactive group; and $B.\text{sup.1}\text{--}X.\text{sup.1}\text{--}(\text{CH}.\text{sub.2}).\text{sub.n}\text{--}[X.\text{sup.2}\text{--}(\text{CH}.\text{sub.2}).\text{sub.m}]\text{sub.x}\text{--}X.\text{sup.3}\text{--}(\text{CH}.\text{sub.2}).\text{sub.p}\text{--}X.\text{sup.4}\text{--}B.\text{sup.2}$ is the linker group wherein: $X.\text{sup.1}$, $X.\text{sup.2}$, $X.\text{sup.3}$ and $X.\text{sup.4}$, independently of one another, and $X.\text{sup.2}$ independently of other $X.\text{sup.2}$, can be selected from O, S, NH, NR, $\text{NRR}'.\text{sup.+}$, CO, COO, COS, S--S, SO, $\text{SO}.\text{sub.2}$, CO--NR', CS--NR', Si--O, aryl and diaryl groups or $X.\text{sup.1}\text{--}X.\text{sup.4}$ may be absent; $B.\text{sup.1}$ and $B.\text{sup.2}$, independently of one another, are optional groups selected from COO, CO, CO--NR', CS--NR', $(\text{CH}.\text{sub.2}).\text{sub.q}\text{--CONR}'$, $(\text{CH}.\text{sub.2}).\text{sub.q}\text{--CS--NR}'$, and $(\text{CH}.\text{sub.2}).\text{sub.q}$; n, m, p, q and x are whole numbers that can take values from 0 to about 100, where the sum of $n+xm+p+q$ is less than about 100; R is an alkyl, alkenyl, alkynyl, alkoxy or an aryl group that is optionally substituted with one or more alkyl, alkenyl, alkynyl, or alkoxy groups; and R' is a hydrogen, an alkyl, alkenyl, alkynyl, alkoxy or an aryl group that is optionally substituted with one or more alkyl, alkenyl, alkynyl, or alkoxy groups wherein one or more of the CH.sub.2 groups in the linker can be optionally substituted with alkyl, alkenyl, alkoxy groups, an aryl group that is optionally substituted with one or more alkyl, alkenyl, alkynyl, or alkoxy groups, an acidic group, a basic group or a group carrying a permanent positive or negative charge; wherein one or more single bonds linking non-adjacent CH.sub.2 groups in the linker can be replaced with a double or a triple bond and wherein one or more of the atoms in the linker is

substituted with one or more stable isotopes.

25. The method of claim 24 wherein in the reagent at least one of B.sup.1 or B.sup.2 is CO--NR' or CS--NR.

26. The method of claim 24 wherein in the reagent X.sup.1 and X.sup.4 are selected from the group consisting of NH, NR, and NRR'.sup.+, X.sup.3 is O and all X.sup.2 groups are O.

27. The method of claim 1 wherein the affinity label in the reagent is biotin or a modified biotin.

28. The method of claim 1 wherein the affinity label in the reagent is selected from the group consisting of a 1,2-diol, glutathione, maltose, a nitrilotriacetic acid group, and an oligohistidine.

29. The method of claim 1 wherein the affinity label in the reagent is a hapten.

30. The method of claim 1 wherein PRG of the reagent is a sulfhydryl-reactive group.

31. The method of claim 1 wherein PRG of the reagent is an iodoacetyl amide group, an epoxide, an .alpha.-haloacyl group, a nitriles, a sulfonated alkyl, an aryl thiols or a maleimide.

32. The method of claim 1 wherein PRG of the reagent is an amine reactive group, a group that reacts with a homoserine lactone or a group that reacts with carboxylic acid group.

33. The method of claim 1 wherein PRG of the reagent is selected from the group consisting of an amine reactive pentafluorophenyl ester group, an amine reactive N-hydroxy succinimide ester group, a sulfonyl halide, an isocyanate, an isothiocyanate, an active ester, a tetrafluorophenyl ester, an acid halide, an acid anhydride, a homoserine lactone-reactive primary amine group, a carboxylic acid reactive amine, alcohols, and 2,3,5,6-tetrafluorophenyl trifluoroacetate.

34. The method of claim 1 wherein PRG of the reagent is a substrate for .beta.-galactosidase, acetyl-.alpha.-D-glucosaminidase, heparan sulfamidase, acetyl-CoA-.alpha.-D-glucosaminide N-acetyltransferase or N-acetylglucosamine-6-sulfatase.

35. The method of claim 1 wherein in the reagent the linker group contains a disulfide group.

36. The method of claim 1 wherein in the reagent any atom of the linker group may be substituted with a heavy isotope.

37. The method of claim 1 wherein in the reagent the linker group is cleavable.

38. The method of claim 5 which determines the relative amounts of membrane proteins in two or more different samples.

39. The method of claim 5 in which different samples contain proteins originating from different organelles or different subcellular fractions.

40. The method of claim 5 in which different samples represent proteins expressed in response to different environmental or nutritional conditions, different chemical or physical stimuli or at different times.

41. The method of claim 5 wherein one or more of the proteins or protein functions identified is associated with a birth defect.

42. The method of claim 5 wherein one or more of the proteins or protein functions identified is associated with a lysosomal storage disease.

43. The method of claim 5 wherein the samples are samples comprising cell surface proteins.

44. The method of claim 5 wherein the method identifies one or more marker proteins characteristic of a particular cellular state.

45. The method of claim 5 wherein the internal standard is an affinity tagged differentially isotopically labeled peptide that is characteristic of a protein to be identified in each of the samples.

46. The method of claim 5 wherein the affinity label in the reagent is selected from the group consisting of a 1,2-diol, glutathione, maltose, a nitrilotriacetic acid group, an oligohistidine and a hapten.

47. The method of claim 5 wherein PRG of the reagent is a sulfhydryl reactive group.

48. The method of claim 5 wherein PRG of the protein reactive reagent is an iodoacetylamine group, an epoxide, an α -haloacyl group, a nitrites, a sulfonated alkyl, an aryl thiols or a maleimide.

49. The method of claim 5 wherein the linker group of the protein reactive reagent contains a disulfide group.

50. The method of claim 5 wherein in the reagent any atom of the linker may be substituted with a heavy isotope.

51. The method of claim 5 wherein in the reagent the linker is cleavable.

52. The method of claim 8 wherein enzyme velocities of one or more enzymes in each sample are determined by quantitation of affinity tagged enzyme products as a function of time.

53. The method of claim 8 wherein the PRG is an enzyme substrate for one or more enzymes, enzymatic deficiencies of which, are linked to a disease state.

54. The method of claim 8 wherein one or more of the proteins or protein functions identified is associated with a birth defect.

55. The method of claim 8 wherein an affinity tagged, substantially chemically identical and differentially

isotopically labeled enzyme substrate is provided for each enzyme that is to be detected and identified in a sample.

56. The method of claim 8 wherein one or more of the proteins or protein functions identified is associated with a lysosomal storage disease.

57. The method of claim 8 wherein PRG of the reagent is a substrate for .beta. galactosidase, acetyl .alpha. D glucosaminidase, heparin sulfamidase, acetyl CoA .alpha. D glucosaminide N acetyltransferase or N acetylglucosamine 6 sulfatase.

58. The method of claim 8 wherein the affinity label in the protein reactive reagent is biotin or a modified biotin.

59. The method of claim 8 wherein the affinity label in the protein reactive reagent is selected from the group consisting of a 1,2-diol, glutathione, maltose, a nitrilotriacetic acid group, an oligohistidine and a hapten.

60. The method of claim 8 wherein in the reagent the linker group contains a disulfide group.

61. The method of claim 8 wherein in the reagent any atom of the linker may be substituted with a heavy isotope.

62. The method of claim 8 wherein in the reagent the linker is cleavable.

63. A method for determining relative amounts of proteins in two or more samples containing proteins which comprises the steps of: (a) providing an affinity tagged, substantially chemically identical but isotopically distinguishable labeled protein reactive reagent for each sample wherein the reagent has the formula:

A--L--PRG where A is an affinity label that selectively

binds to a capture reagent, L is a linker group which is differentially labeled with one or more stable isotopes and PRG is a protein reactive group that selectively reacts with a protein functional group; (b) reacting each sample with one of the protein reactive reagents to provide affinity tagged proteins in the sample, affinity tagged proteins in different samples, being thereby differentially labeled with stable isotopes; (c) combining the differentially labeled samples and treating the combined sample to cleave the proteins therein and to generate peptides; (d) capturing affinity tagged differentially labeled peptides of the combined sample using the capture reagent that selectively binds A; (e) releasing captured affinity tagged differentially labeled peptides from the capture reagent by disrupting the interaction between the affinity tagged differentially labeled peptides and the capture reagent; (f) detecting and identifying the released affinity tagged differentially labeled peptides by mass spectrometry; and (g) measuring relative abundances of isotopically distinctions generated from each affinity tagged differentially labeled peptide to determine relative amounts of the protein from which the affinity tagged differentially labeled peptide originated.

64. The method of claim 63 further comprising adding a known amount of one or more internal standards to two or more of the samples to be analyzed.

65. The method of claim 64 wherein the internal standard is an affinity tagged differentially isotopically labeled peptide that is characteristic of a protein whose amount is to be determined.

66. The method of claim 63 wherein the two or more samples are samples comprising cell surface proteins.

67. The method of claim 66 wherein the method determines the relative expression levels of one or more marker proteins characteristic of a particular cellular state in the two or more samples comprising cell surface proteins.

68. The method of claim 63 wherein PRG of the reagent is a sulfhydryl-reactive group, an iodoacetylamine group, an epoxide, an .alpha.-haloacyl group, a nitrites, a sulfonated alkyl, an aryl thiol, a maleimide, an amine reactive group, a group that reacts with a homoserine lactone or a group that reacts with carboxylic acid group.

69. The method of claim 63 wherein in the reagent the linker group contains a disulfide group.

70. The method of claim 63 wherein in the reagent any atom of the linker group may be substituted with a heavy isotope.

71. The method of claim 63 wherein one or more of the proteins identified is associated with a birth defect.

72. The method of claim 63 wherein one or more of the proteins identified is associated with a lysosomal storage disease.

73. The method of claim 63 wherein the samples are samples comprising cell surface proteins.

74. The method of claim 63 wherein the method identifies one or more marker proteins characteristic of a particular cellular state.

75. The method of claim 63 wherein in the reagent the linker group contains a disulfide group.

76. The method of claim 63 wherein in the reagent any atom of the linker may be substituted with a heavy isotope.

77. The method of claim 63 wherein in the reagent the linker is cleavable.

78. A method for identifying one or more proteins or protein functions in two or more samples containing mixtures of proteins which comprises the steps of: (a) providing an affinity tagged protein reactive reagent

wherein the reagent has the formula:

A--L--PRG where A is an affinity label that selectively binds to a capture reagent, L is a linker group which is differentially labeled with one or more stable isotopes and PRG is a protein reactive group that is a substrate for an enzyme; (b) reacting each sample with the protein reactive reagent to provide affinity tagged differentially labeled enzyme products in each sample, (c) capturing the affinity tagged differentially labeled enzyme products of the samples using the capture reagent that selectively binds A; (d) releasing the captured affinity tagged differentially labeled enzyme products from the capture reagent by disrupting the interaction between the affinity tagged differentially labeled enzyme products and the capture reagent; and (e) detecting and identifying the released affinity tagged differentially labeled enzyme products by mass spectrometry to identify one or more proteins or protein functions in the samples.

79. The method of claim 78 wherein an affinity tagged substantially chemically identical but isotopically distinguishable protein reactive agent is provided for each sample by differentially labeling the linker group of the protein reactive reagent with one or more stable isotopes.

80. A method for determining an enzyme velocity of one or more enzymes in two or more samples by quantitation of one or more affinity tagged products of the one or more enzymes in the sample which comprises the steps of: (a) providing an affinity tagged protein reactive reagent wherein the reagent has the formula:

A--L--PRG where A is an affinity label that selectively binds to a capture reagent, L is a linker group which is differentially labeled with one or more stable isotopes and PRG is a protein reactive group that is a substrate for an enzyme; (b) reacting each sample with the protein reactive reagent to provide affinity tagged differentially labeled enzyme products in each sample, (c) introducing into each of the samples a known amount

of one or more internal standards for each of the affinity tagged differentially labeled enzyme products to be quantitated, (d) capturing the affinity tagged differentially labeled enzyme products of each of the samples using the capture reagent that selectively binds A; (e) releasing the captured affinity tagged differentially labeled enzyme products from the capture reagent by disrupting the interaction between the affinity tagged differentially labeled enzyme products and the capture reagent; and (f) identifying and quantitating the released affinity tagged differentially labeled enzyme products by mass spectrometry to determine the enzyme velocity of the one or more enzymes in the samples.

81. The method of claim 80 wherein one or more of the enzymes, the velocities of which are determined, is associated with a birth defect.

82. The method of claim 80 wherein the deficiency of one or more of the enzymes, the velocities of which are determined, is linked to a disease state.

83. The method of claim 78 wherein relative amounts of one or more proteins or protein functions in two or more different samples is also determined and which further comprises the steps of combining the differentially labeled samples, capturing affinity tagged differentially labeled enzyme products from the combined samples and measuring the relative amounts of the affinity tagged differentially labeled enzyme products in the different samples.

84. The method of claim 78 wherein PRG of the reagent is a substrate for .beta.-galactosidase, acetyl-.alpha.-D-glucosaminidase, heparin sulfamidase, acetyl-CoA-D-glucosaminide N-acetyltransferase or N-acetylglucosamine-6-sulfatase.

85. The method of claim 78 wherein PRG is an enzyme substrate for one or more enzymes, the deficiencies of which are linked to a disease state.

86. The method of claim 78 wherein one or more of the proteins or protein functions identified is associated with a lysosomal storage disease.

87. The method of claim 78 wherein one or more of the proteins or protein functions identified is associated with a birth defect.

88. The method of claim 78 wherein the affinity label in the protein reactive reagent is biotin or a modified biotin.

89. The method of claim 78 wherein the affinity label in the protein reactive reagent is selected from the group consisting of a 1,2-diol, glutathione, maltose, a nitrilotriacetic acid group, an oligohistidine and a hapten.

90. The method of claim 78 wherein the linker group in the protein reactive reagent contains a disulfide group.

91. The method of claim 78 wherein the linker group in the protein reactive reagent is cleavable.

92. The method of claim 78 wherein the linker group in the protein reactive group may be substituted with a heavy isotope.

93. The method of claim 78 wherein the reagent has the formula:

$$A-B_{sup.1} -X_{sup.1} -(CH_{sub.2})_{sub.n} -[X_{sup.2} -(CH_{sub.2})_{sub.m}]_{sub.x} -X_{sup.3} -(CH_{sub.2})_{sub.p} -X_{sup.4} -B_{sup.2} -PRG$$

where: A is the affinity label; PRG is the enzyme substrate; and $B_{sup.1} -X_{sup.1} -(CH_{sub.2})_{sub.n} -[X_{sup.2} -(CH_{sub.2})_{sub.m}]_{sub.x} -X_{sup.3} -(CH_{sub.2})_{sub.p} -X_{sup.4} -B_{sup.2}$ is the linker group wherein: $X_{sup.1}$, $X_{sup.2}$, $X_{sup.3}$ and $X_{sup.4}$, independently of one another, and $X_{sup.2}$ independently of other $X_{sup.2}$, can be selected from O, S, NH, NR, $NRR'_{sup.+}$, CO, COO, COS, S--S, SO, $SO_{sub.2}$, CO--NR',

CS--NR', Si--O, aryl and diaryl groups or X.sup.1 - X.sup.4 may be absent; B.sup.1 and B.sup.2, independently of one another, are optional groups selected from COO, CO, CO--NR', CS--NR', (CH.sub.2).sub.q --CONR', (CH.sub.2).sub.q 13 CS--NR', and (CH.sub.2).sub.q ; n, m, p, q and x are whole numbers that can take values from 0 to about 100, where the sum of n+xm+p+q is less than about 100; R is an alkyl, alkenyl, alkynyl, alkoxy or an aryl group that is optionally substituted with one or more alkyl, alkenyl, alkynyl, or alkoxy groups; and R' is a hydrogen, an alkyl alkenyl, alkynyl, alkoxy or an aryl group that is optionally substituted with one or more alkyl, alkenyl, alkynyl, or alkoxy groups wherein one or more of the CH.sub.2 groups in the linker can be optionally substituted with alkyl, alkenyl, alkoxy groups, an aryl group that is optionally substituted with one or more alkyl, alkenyl, alkynyl, or alkoxy groups, an acidic group, a basic group or a group carrying a permanent positive or negative charge; wherein one or more single bonds linking non-adjacent CH.sub.2 groups in the linker can be replaced with a double or a triple bond and wherein one or more of the atoms in the linker is substituted with one or more stable isotopes.

94. The method of claim 93 wherein in the reagent at least one of B.sup.1 or B.sup.2 is CONR' or CSNR.

95. The method of claim 93 wherein in the reagent X.sup.1 and X.sup.4 are selected from the group consisting of NH, NR and NRR', X.sup.3 is O and all X.sup.2 groups are O.

96. The method of claim 93 wherein the affinity label in the reagent is biotin or a modified biotin.

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☐ 1. Document ID: US 6833542 B2

L16: Entry 1 of 13

File: USPT

Dec 21, 2004

US-PAT-NO: 6833542

DOCUMENT-IDENTIFIER: US 6833542 B2

TITLE: Method for sorting particles

DATE-ISSUED: December 21, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wang; Mark M.	San Diego	CA		
Tu; Eugene	San Diego	CA		
O'Connell; James P.	Del Mar	CA		
Lykstad; Kristie L.	San Diego	CA		
Butler; William F.	La Jolla	CA		

US-CL-CURRENT: 250/251; 435/173.1

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 2. Document ID: US 6797480 B1

L16: Entry 2 of 13

File: USPT

Sep 28, 2004

US-PAT-NO: 6797480

DOCUMENT-IDENTIFIER: US 6797480 B1

TITLE: Purification of heat shock/stress protein cell surface receptors and their use as immunotherapeutic agents

DATE-ISSUED: September 28, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Srivastava; Pramod K.	Avon	CT		

US-CL-CURRENT: 435/7.1; 424/184.1, 424/278.1, 424/9.2, 435/325, 435/372.3, 435/7.2,

436/4, 436/6, 514/2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw D
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☐ 3. Document ID: US 6794128 B2

L16: Entry 3 of 13

File: USPT

Sep 21, 2004

US-PAT-NO: 6794128

DOCUMENT-IDENTIFIER: US 6794128 B2

TITLE: Methods of selecting internalizing antibodies

DATE-ISSUED: September 21, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Marks; James D.	Kensington	CA		
Poul; Marie Alix	San Francisco	CA		
Becerril; Baltazar	Morelos			MX

US-CL-CURRENT: 435/5; 435/320.1, 435/4, 435/6, 435/7.1, 435/7.2, 435/DIG.1,
435/DIG.14, 435/DIG.15, 435/DIG.2, 435/DIG.3, 435/DIG.4, 436/501, 436/518,
536/23.1, 536/23.53

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw D
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☐ 4. Document ID: US 6784420 B2

L16: Entry 4 of 13

File: USPT

Aug 31, 2004

US-PAT-NO: 6784420

DOCUMENT-IDENTIFIER: US 6784420 B2

TITLE: Method of separating particles using an optical gradient

DATE-ISSUED: August 31, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wang; Mark M.	San Diego	CA		
Tu; Eugene	San Diego	CA		
O'Connell; James P.	Del Mar	CA		
Lykstad; Kristie L.	San Diego	CA		
Butler; William F.	La Jolla	CA		

US-CL-CURRENT: 250/251; 435/173.1

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw D
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☐ 5. Document ID: US 6699658 B1

L16: Entry 5 of 13

File: USPT

Mar 2, 2004

US-PAT-NO: 6699658

DOCUMENT-IDENTIFIER: US 6699658 B1

TITLE: Yeast cell surface display of proteins and uses thereof

DATE-ISSUED: March 2, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wittrup; K. Dane	Chestnut Hill	MA		
Kranz; David M.	Champaign	IL		
Kieke; Michele	Urbana	IL		
Boder; Eric T.	Media	PA		

US-CL-CURRENT: 435/6; 435/252.3, 435/254.1, 435/254.11, 435/254.2, 435/254.21,
435/254.22, 435/254.23, 435/69.1, 435/7.1 , 435/7.2, 435/7.31

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 6. Document ID: US 6696251 B1

L16: Entry 6 of 13

File: USPT

Feb 24, 2004

US-PAT-NO: 6696251

DOCUMENT-IDENTIFIER: US 6696251 B1

TITLE: Yeast cell surface display of proteins and uses thereof

DATE-ISSUED: February 24, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wittrup; K. Dane	Chestnut Hill	MA		
Kranz; David M.	Champaign	IL		
Kieke; Michele	Urbana	IL		
Boder; Eric T.	Media	PA		

US-CL-CURRENT: 435/6; 435/29, 435/320.1, 435/4, 435/471, 435/483, 435/69.1,
435/7.1, 435/7.2

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 7. Document ID: US 6531316 B1

L16: Entry 7 of 13

File: USPT

Mar 11, 2003

US-PAT-NO: 6531316

DOCUMENT-IDENTIFIER: US 6531316 B1

TITLE: Encryption of traits using split gene sequences and engineered genetic elements

DATE-ISSUED: March 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Patten; Phillip A.	Menlo Park	CA		
Lassner; Michael	Davis	CA		

US-CL-CURRENT: 435/455; 435/440, 435/463, 435/6, 435/91.1

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWMC	Draw D
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☐ 8. Document ID: US 6352694 B1

L16: Entry 8 of 13

File: USPT

Mar 5, 2002

US-PAT-NO: 6352694

DOCUMENT-IDENTIFIER: US 6352694 B1

**** See image for Certificate of Correction ****

TITLE: Methods for inducing a population of T cells to proliferate using agents which recognize TCR/CD3 and ligands which stimulate an accessory molecule on the surface of the T cells

DATE-ISSUED: March 5, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
June; Carl H.	Rockville	MD		
Thompson; Craig B.	Chicago	IL		
Nabel; Gary J.	Ann Arbor	MI		
Gray; Gary S.	Brookline	MA		
Rennert; Paul D.	Holliston	MA		

US-CL-CURRENT: 424/93.71; 424/534, 424/577, 424/578, 424/93.7, 435/2, 435/375, 435/377

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWMC	Draw D
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☐ 9. Document ID: US 6300065 B1

L16: Entry 9 of 13

File: USPT

Oct 9, 2001

US-PAT-NO: 6300065

DOCUMENT-IDENTIFIER: US 6300065 B1

TITLE: Yeast cell surface display of proteins and uses thereof

DATE-ISSUED: October 9, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kieke; Michele C.	Urbana	IL		
Wittrup; K. Dane	Urbana	IL		
Boder; Eric T.	Denver	CO		
Kranz; David M.	Champaign	IL		
Shusta; Eric	Urbana	IL		

US-CL-CURRENT: 435/6; 435/252.3, 435/254.1, 435/254.11, 435/254.21, 435/254.22,
435/254.23, 435/29, 435/320.1, 435/325, 435/348, 435/69.1, 435/7.1, 435/7.2,
435/7.31

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 10. Document ID: US 6015554 A

L16: Entry 10 of 13

File: USPT

Jan 18, 2000

US-PAT-NO: 6015554

DOCUMENT-IDENTIFIER: US 6015554 A

TITLE: Method of reconstituting human lymphoid and dendritic cells

DATE-ISSUED: January 18, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Galy; Anne H. M.	Palo Alto	CA		

US-CL-CURRENT: 424/93.7; 424/577, 435/372, 435/7.2

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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File: USPT

Nov 16, 1999

US-PAT-NO: 5985543

DOCUMENT-IDENTIFIER: US 5985543 A

TITLE: Compositions and methods for detection of antibody binding to cells

DATE-ISSUED: November 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Siegel; Donald L.	Hatboro	PA		

US-CL-CURRENT: [435/5](#); [435/7.21](#), [435/7.25](#), [436/520](#), [436/521](#)

CLAIMS:

What is claimed is:

1. A method of agglutinating cells comprising providing a mixture comprising a population of cells and a population of bacteriophage expressing a first antibody on the surface of said bacteriophage, said first antibody being specific for an antigen-bearing moiety expressed by at least a portion of the cells in said cell population, wherein said first antibody binds to said portion of said cells causing said bacteriophage to also bind to said portion of said cells, adding to said mixture a second antibody specific for said bacteriophage, wherein binding of said second antibody to bacteriophage bound to said portion of said cells causes said portion of said cells to agglutinate.
2. The method of claim 1, wherein said cells are selected from the group consisting of red blood cells and white blood cells.
3. The method of claim 2, wherein said cells are red blood cells.
4. The method of claim 1, wherein said bacteriophage is

M13.

5. The method of claim 4, wherein said second antibody is anti-M13 antibody.

6. The method of claim 3, wherein said first antibody is an anti-red blood cell antibody.

7. The method of claim 6, wherein said first antibody is anti-Rh antibody.

8. The method of claim 1, wherein said antigen-bearing moiety is a red blood cell antigen.

9. The method of claim 1, wherein said antigen-bearing moiety is a HLA antigen.

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L16: Entry 11 of 13

File: USPT

Nov 23, 1999

US-PAT-NO: 5989843

DOCUMENT-IDENTIFIER: US 5989843 A

TITLE: Methods for identifying modulators of protein kinase C phosphorylation of
ICAM-related protein

DATE-ISSUED: November 23, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gallatin; W. Michael	Mercer Island	WA		
Vazeux; Rosemay	Seattle	WA		

US-CL-CURRENT: 435/15; 435/4

CLAIMS:

We claim:

1. A method for identifying a compound that modulates phosphorylation of ICAM-R by protein kinase C isoform comprising the steps of:

(a) exposing a purified peptide consisting of the cytoplasmic domain of ICAM-R having the sequence set forth in SEQ ID NO:1 to protein kinase C isoform and labeled adenosine triphosphate in the presence and absence of a test compound;

(b) measuring labeled phosphate transferred to said peptide; and

(c) identifying a test compound that affects transfer of said labeled phosphate as a modulator compound.

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☐ 11. Document ID: US 5989843 A

L16: Entry 11 of 13

File: USPT

Nov 23, 1999

US-PAT-NO: 5989843

DOCUMENT-IDENTIFIER: US 5989843 A

TITLE: Methods for identifying modulators of protein kinase C phosphorylation of ICAM-related protein

DATE-ISSUED: November 23, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gallatin; W. Michael	Mercer Island	WA		
Vazeux; Rosemay	Seattle	WA		

US-CL-CURRENT: 435/15; 435/4

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 12. Document ID: US 5985543 A

L16: Entry 12 of 13

File: USPT

Nov 16, 1999

US-PAT-NO: 5985543

DOCUMENT-IDENTIFIER: US 5985543 A

TITLE: Compositions and methods for detection of antibody binding to cells

DATE-ISSUED: November 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Siegel; Donald L.	Hatboro	PA		

US-CL-CURRENT: 435/5; 435/7.21, 435/7.25, 436/520, 436/521

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWIC	Draw D
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☐ 13. Document ID: US 5686281 A

L16: Entry 13 of 13

File: USPT

Nov 11, 1997

US-PAT-NO: 5686281

DOCUMENT-IDENTIFIER: US 5686281 A

**** See image for Certificate of Correction ****

TITLE: Chimeric receptor molecules for delivery of co-stimulatory signals

DATE-ISSUED: November 11, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Roberts; Margo R.	San Francisco	CA		

US-CL-CURRENT: 435/456; 435/69.7, 435/7.1, 435/7.2, 536/23.4

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWC	Draw D
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